

Amendments to the Specification:

Please replace the paragraph beginning on page 39, line 5, with the following rewritten paragraph:

As a specific example of such a selection procedure, an example will be described wherein a near-infrared light beam having a wavelength of 850nm, 1350nm, or 1550nm oscillated from a semiconductor laser and which can be modulated at an ultra-high speed on the order of gigahertz is used as the signal light beam, wherein this light beam is switched between optical paths by the control light beam of a plurality of visible light beam wavelength bands. As a light source of the control light beam, a continuous wave (CW) oscillation laser that can be turned on and off at a response speed less than sub-millisecond greater than sub-millisecond can be preferably used. Examples, listed in order of increasing wavelength, include a blue-violet or blue semiconductor laser light beam having a wavelength of 405 to 445nm; a light beam obtained by converting a light beam having a wavelength of 1064nm of a semiconductor-excited Nd: YAG laser into a green light beam of 532nm by a second order non-linear optical device; a red semiconductor laser light beam of 635nm or 670nm; and a near-infrared laser light beam of 780nm or 800nm. As a pigment that shows absorption in these wavelength bands for the control light beam and does not absorb a near infrared light beam of 850nm or 1550nm, for example, two (2) or more of such pigments can be selected and preferably used respectively as: for example, N, N'-bis(2, 5-di-*tert*-butylphenyl)-3, 4, 9, 10-perylenedicarboxyimide)

Please replace the paragraph beginning on page 54, line 18, with the following rewritten paragraph:

A method of producing a composite-type optical thin film (see, for example, Japanese Patent Application Publication No. 2599569) can be utilized, wherein an organic optical

material having two (2) or more components in a solution state or a dispersed liquid state is deposited on a substrate by spraying the material into a high-vacuum container from a spray nozzle provided for each component and is heat-processed.

Please replace the paragraph beginning on page 75 line 8, with the following rewritten paragraph:

A light beam of which the optical intensity distribution is a Gaussian distribution is used for each of the signal light beams and the three (3) control light beams. When a laser light beam as this is condensed by a lens, the optical intensity distribution at the beam waist (light-condensed point; focal point) becomes a Gaussian distribution. When laser light beams having wavelengths in wavelength bands that are absorbed by the light-absorbing film are used as the control light beams, are irradiated to the thermal lens forming device containing the light-absorbing film through the condenser lens, and are converged in the light-absorbing layer film containing the thermal lens forming layer, the light-absorbing film absorbs the laser light and the temperature of the thermal lens forming layer is increased, which decreases the refractive index of that layer. When a light beam having Gaussian-distributed optical intensity as described above is irradiated, the central portion of the Gaussian distribution that has strong optical intensity is convergedabsorbed and the area being irradiated with the light beam becomes the center of light absorption and, in this area, the temperature becomes highest and the refractive index becomes lowest. The light absorption changes into heat from the central portion of the light absorption toward the outer circumference and, furthermore, the refractive index of the light-absorbing layer film containing the thermal lens forming layer is varied spherically from the center of the light absorption toward the exterior due to the heat conveyed to the periphery, and a distribution of refractive index having low refractive index at the center of the light absorption and higher refractive index toward the exterior is created.

Then, this distribution functions as a concave lens. That is, a light beam has a higher velocity at a position having a lower refractive index than at a position having a higher refractive index and, therefore, the light velocity at the time when a light beam passes through the area irradiated with the central portion of the Gaussian distribution, that has high optical intensity is higher than the light velocity at the time when the light beam passes through the area irradiated with the peripheral portion of the Gaussian distribution, that has low optical intensity. Therefore, the light beam is deflected toward the area irradiated with the peripheral portion of the Gaussian distribution that has low optical intensity. This operation is locally the same as that of a convex lens in the atmosphere. In practice, the control light beam is condensed by the condenser lens 31, etc. and is irradiated into the light-absorbing layer film containing the thermal lens forming layer. Then, light absorption occurs multiply in the traveling direction of the converged light beam and the light flux of the traveling control light beam itself is also deformed by the thermal lens formed multiply. Therefore, the thermal lens effect that is observed here is different from the effect caused by a single concave lens as described later.